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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/627,783	07/28/2003	Gonzalo Wills	10-579 US	5338
24949	7590	05/15/2006	EXAMINER	
TEITELBAUM & MACLEAN 1187 BANK STREET, SUITE 201 OTTAWA, ON K1S 3X7 CANADA			LAVARIAS, ARNEL C	
			ART UNIT	PAPER NUMBER
			2872	

DATE MAILED: 05/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/627,783

Applicant(s)

WILLS ET AL.

Examiner

Arnel C. Lavarias

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS; WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 March 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 4,6 and 21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5 and 7-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 March 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The replacement drawings were received on 3/9/06. These drawings are acceptable.

Response to Amendment

2. The amendments to Claims 1-4, 8, 14-16 in the submission dated 3/9/06 are acknowledged and accepted.
3. The addition of Claim 21 in the submission dated 3/9/06 is acknowledged and accepted.

Election/Restrictions

4. Newly submitted Claim 21 is directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

Claim 21 recites the first lens receiving the first and second sub-beams *on opposite sides of an optical axis thereof* for redirecting the first and second sub-beams along the converging paths. Figures 2-9, which are drawn to non-elected species (See the Office Action dated 9/27/05) clearly show that the first lens (See for example 106 in Figure 4 of Applicants' disclosure) receives a first (See for example 103 in Figure 4 of Applicants' disclosure) and second (See for example 104 in Figure 4 of Applicants' disclosure) sub-beam on opposite sides of an optical axis (See for example 105 in Figure 4 of Applicants' disclosure). However, Figures 10-12, which are drawn to the elected species, instead

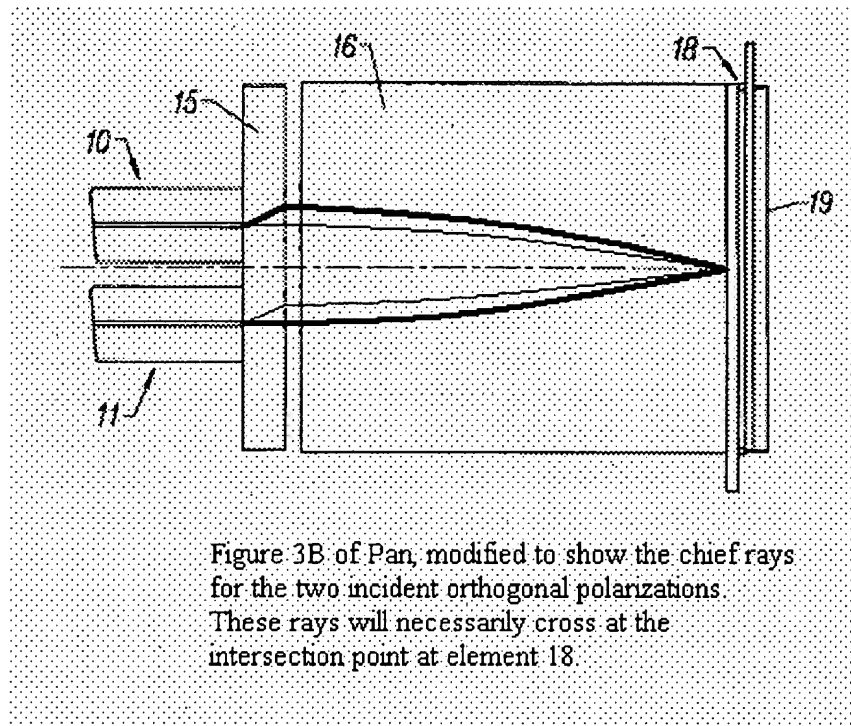
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show that the first lens (See 406 in Figure 10) receives the first (See 403 in Figure 10) and second (See 404 in Figure 10) sub-beams on the same side of an optical axis (In this case, the optical axis passes through the cross drawn in element 406 in Figure 10).

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, Claim 21 is withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Response to Arguments

5. The Applicants' arguments filed 3/9/06 have been fully considered but they are not persuasive.
6. The Applicants argue that, with respect to newly amended Claims 1 and 14, as well as Claims 2-3, 5, 7-20 which depend on Claims 1 and 14, Pan fails to teach or reasonably suggest the first and second sub-beams being on first and second paths, respectively, which converge, crisscross, and then diverge. The Examiner respectfully disagrees. Figure 3B of Pan is reproduced below, and has been modified to specifically show only the chief rays for the two incident orthogonal polarizations of light emerging from element 10. It is readily apparent that these two rays emerge from element 10, converge toward each other, cross each other at the intersection point at element 18, is reflected, and diverge from each other as they propagate toward element 11. See Figure 10 of Applicants' disclosure which, in comparison, operates in an identical fashion.



7. Claims 1-3, 5, 7-20 are now rejected as follows.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-3, 5, 7, 11-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Pan (U.S. Patent No. 6181846), of record.

Pan discloses a variable optical attenuator device (See for example Figures 2A, 3B-C, 7) comprising an input port (See for example 10 in Figures 2A, 3B-C) for launching an

input beam of light; a polarization beam splitter (See for example 15 in Figures 2A, 3B-C; Figures 2B-C) for dividing the input beam into first and second orthogonally polarized sub-beams; a first lens (See 16 in Figures 2A, 3B-C) for collimating the first and second sub-beams, and for redirecting the first and second sub-beams along first and second paths, respectively, which converge, crisscross and then diverge (See specifically Figures 3B-C); a variable polarization rotator (See 18 in Figures 2A, 3B-C) disposed in the first and second paths for rotating the polarization of the first and second sub-beams by a desired amount, whereby each of the first and second sub-beams has first and second orthogonally polarized components; a second lens (See 16 in Figures 2A, 3B-C) for focusing the first and second sub-beams, and for redirecting the first and second sub-beams along substantially parallel paths, the second lens being between the variable polarization rotator and a polarization beam combiner, the second lens redirecting the first and the second sub-beams to the polarization beam combiner; a polarization beam combiner (See 15 in Figures 2A, 3B-C) disposed in the parallel paths for combining the first component of the first sub-beam with the second component of the second sub-beam into an output beam; and an output port (See 11 in Figures 2A, 3B-C) for outputting the output beam. Pan additionally discloses the first and second paths intersecting proximate the variable polarization rotator, whereby both the first and second sub-beams enter the variable polarization rotator at substantially the same point (See Figures 3A-B); the variable polarization rotator is disposed proximate a focal plane of the first lens, whereby the first and second paths intersect proximate the variable polarization rotator (See Figures 3B-C); the device further comprising a reflective element between the first lens

and the variable polarization rotator or between the polarization rotator and the second lens for redirecting the first and second sub-beams (See 19 in Figures 2A, 3B-C); the first and second lenses comprise a single lens, which redirects the first and second sub-beams twice; and wherein the first and second birefringent elements comprise a single birefringent crystal, which separates and combines the input beam and output beam, respectively (See 15, 16 in Figures 2A, 3B-C); the polarization beam splitter is sized to receive a plurality of input beams, and divide each of the plurality of input beams into a plurality of first and second sub-beams (See 65 in Figure 7); the polarization beam combiner is sized to receive the plurality of first and second sub-beams for combining respective first components of the first sub-beams with the second components of the second sub-beams (See 65 in Figure 7); the polarization beam splitter is a first birefringent crystal, and wherein the polarization beam combiner is a second birefringent crystal (See 15 in Figures 2A, 3B-C; col. 4, line 51-col. 5, line 6); the variable polarization rotator is a liquid crystal cell (See 18 in Figures 2A, 3B-C; col. 2, line 47-col. 3, line 6); the first and second birefringent crystals induce an optical path length difference between the first and second sub-beams, thereby inducing a predetermined polarization mode dispersion (It is noted that though Pan does not explicitly disclose this feature, it is necessarily inherent to the operation of the birefringent elements. In particular, the birefringent crystals will act either to split unpolarized light into two beams having orthogonal polarization components, or recombine two beams having orthogonal polarization components into a single beam. In performing these functions, the beams having orthogonal polarization traversing the birefringent crystals will travel different

paths, where one path will be longer than the other path. This directly leads to an optical path different between these two beams, which in turn leads to polarization mode dispersion when such beams are recombined, unless the optical path difference is compensated for prior to recombination.); and the input port being a plurality of input ports, and the output port being a plurality of output ports (See for example Figures 8A-B).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 8-10, 14-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pan.

Pan discloses the invention as set forth above in Claim 1, except for the first and second lenses being a single array of lenses and the variable polarization rotator being an array of variable polarization rotators, i.e. the duplication of multiple variable optical attenuator devices operating in parallel. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the first and second lenses be a single array of lenses and the variable polarization rotator be an array of variable polarization rotators, i.e. the duplication of multiple variable optical attenuator devices operating in parallel, since it has been held that a mere duplication of working

parts of a device involves only routine skill in the art. One would have been motivated to have the first and second lenses be a single array of lenses and the variable polarization rotator be an array of variable polarization rotators, i.e. the duplication of multiple variable optical attenuator devices operating in parallel, to allow the device to process multiple input signals, such as from a WDM-type communications signal, in parallel or at the same time, thus reducing processing time and cost. *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960).

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arnel C. Lavarias whose telephone number is 571-272-2315. The examiner can normally be reached on M-F 9:30 AM - 6 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Arnel C. Lavarias
Patent Examiner
Group Art Unit 2872
5/9/06



Replacement Sheet
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Figure 8

